

have little or no doubt that Harris's  
electrometer would show  
ft (23\*95)-

90. ii. *Magnetism*.—Perfectly distinct.  
According to Dr.  
Davy/ the current deflected the needle and  
made magnets  
under the same law, as to direction, which governs  
currents of  
ordinary and voltaic electricity.

91. iii. *Chemical decomposition*.—Also distinct;  
and though  
Dr. Davy used an apparatus of similar  
construction with that  
of Dr. Wollaston (63), still no error in the  
present case is  
involved, for the decompositions were polar, and in  
their nature  
truly electro-chemical. By the direction of the  
magnet, it was  
found that the under surface of the fish was  
negative, and the  
upper positive; and in the chemical  
decompositions, silver and  
lead were precipitated on the wire connected  
with the under  
surface, and not on the other; and when these  
wires were either  
steel or silver, in solution of common salt, gas  
(hydrogen?)  
rose from the negative wire, but none from the  
positive.

92. Another reason for the decomposition  
being electro-  
chemical is, that a Wollaston's apparatus  
constructed with *wires*,  
coated by sealing-wax, would most probably not  
have decom-  
posed water, even in its own peculiar way,  
unless the elec-  
tricity had risen high enough in intensity to  
produce sparks in  
some part of the circuit; whereas the torpedo  
was not able to  
produce sensible sparks. A third reason is, that  
the purer the  
water in Wollaston's apparatus, the more  
abundant is the  
decomposition: and I have found that a  
machine and wire  
points which succeeded perfectly well with distilled  
water, failed  
altogether when' the water was rendered a good  
conductor by  
sulphate of soda, common salt, or other saline  
bodies. But in  
Dr. Davy's experiments with the torpedo, *strong*  
solutions of salt,  
nitrate of silver, and superacetate of lead were  
used success-  
fully, and there is no doubt with more success than  
weaker ones.

93. iv. *Physiological effects*.—These are so  
characteristic, that  
by them the peculiar powers of the torpedo and  
gymnotus are  
principally recognised.

94. v. *Spark*.—The electric spark has not yet  
been obtained,  
or at least I think not; but perhaps I had better  
refer to the  
evidence on this point. Humboldt, speaking of  
results obtained

by M. Fahlberg, of Sweden, says, " This philosopher has seen an electric spark, as Walsh and Ingenhousz had done before him at London, by placing the gymnotus in the air, and interrupting the conducting chain by two gold leaves pasted upon

<sup>1</sup> *Philosophical Transactions*, 1832, p. 260.